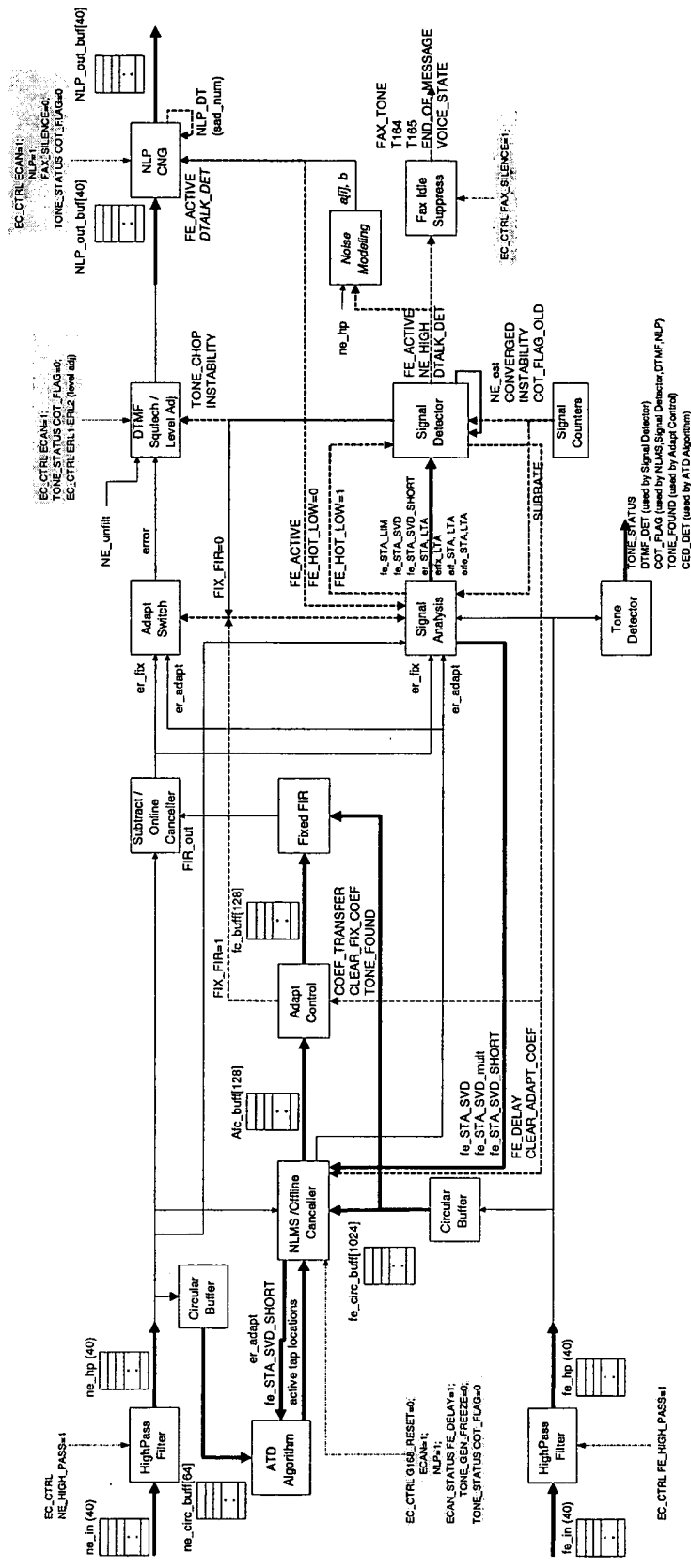


Figure 1 Voice Echo Cancellation Block Diagram



Run on every 40 samples: HighPass, NLP CNG
 Run on every 4 samples: Signal Analysis, Signal Detector, Noise Modelling
 Run on every 1 sample: All other blocks

→ scalar signal
 → vector signal
 → ECAN_STATUS bits
 → conditions to enable a block

Figure 2 Voice Echo Canceller Block Diagram with Active Tap Detection Algorithm

L_sum1 = echo estimate calculated by using all reflections in A
L_sum2 = echo estimate calculated by using all reflections
except the one which has the least power in A
er_adapt = ne_hp - L_sum1
error1 = er_adapt
error2 = ne_hp - L_sum2

302

$er_STA1 = (1 - 2^{-7}) * er_STA1 + 2^{-7} * error1$
 $er_STA2 = (1 - 2^{-7}) * er_STA2 + 2^{-7} * error2$

304

YES

NO

$er_STA_2 > er_STA_1$

308

er_counter++
(limited to 1000)

306

310

er_counter--

YES

NO

Active Taps
Detected

314

FLAG = 0

312

316

FLAG = 1

X

Fig. 3A 300

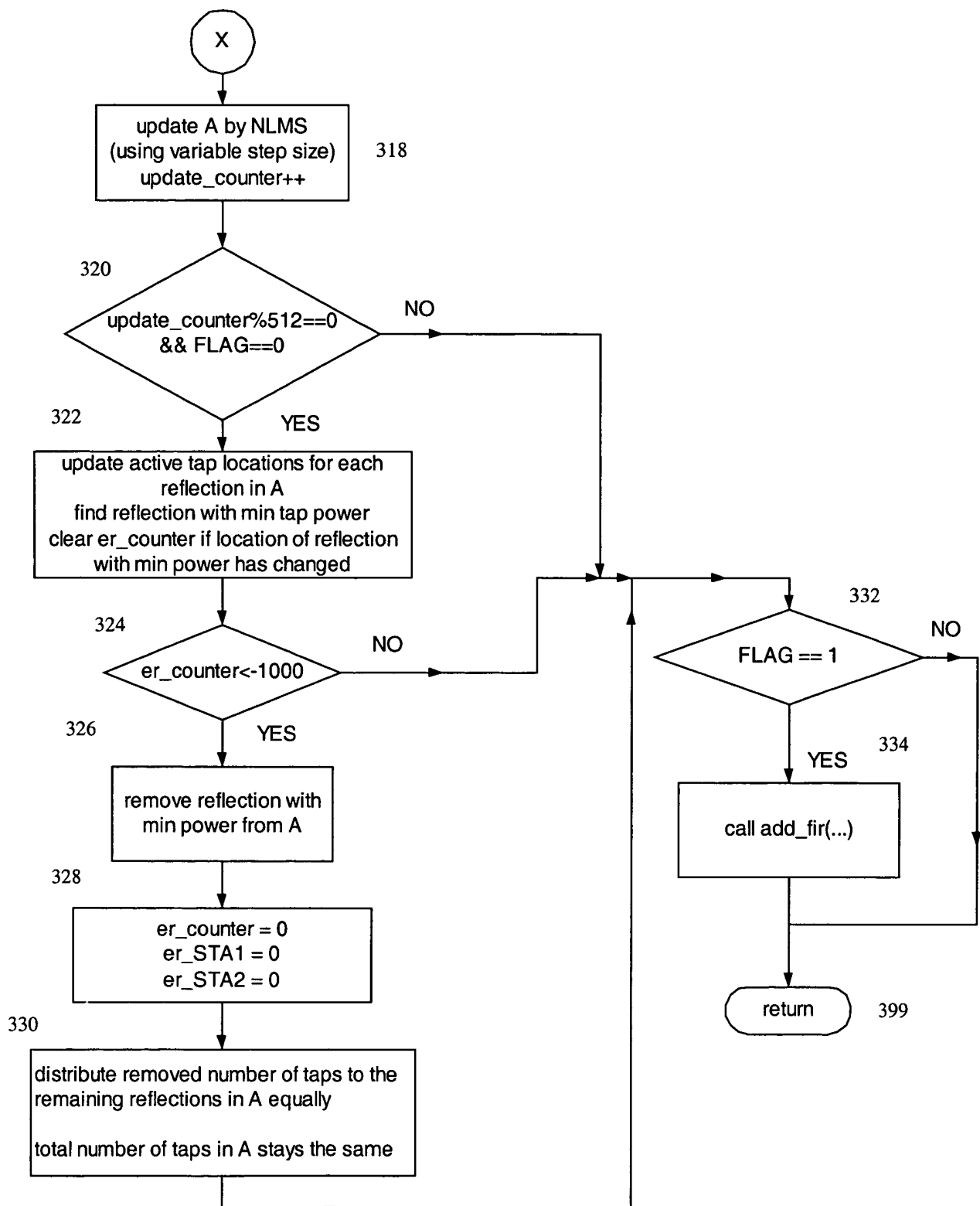


Fig. 3B

FIG. 4A

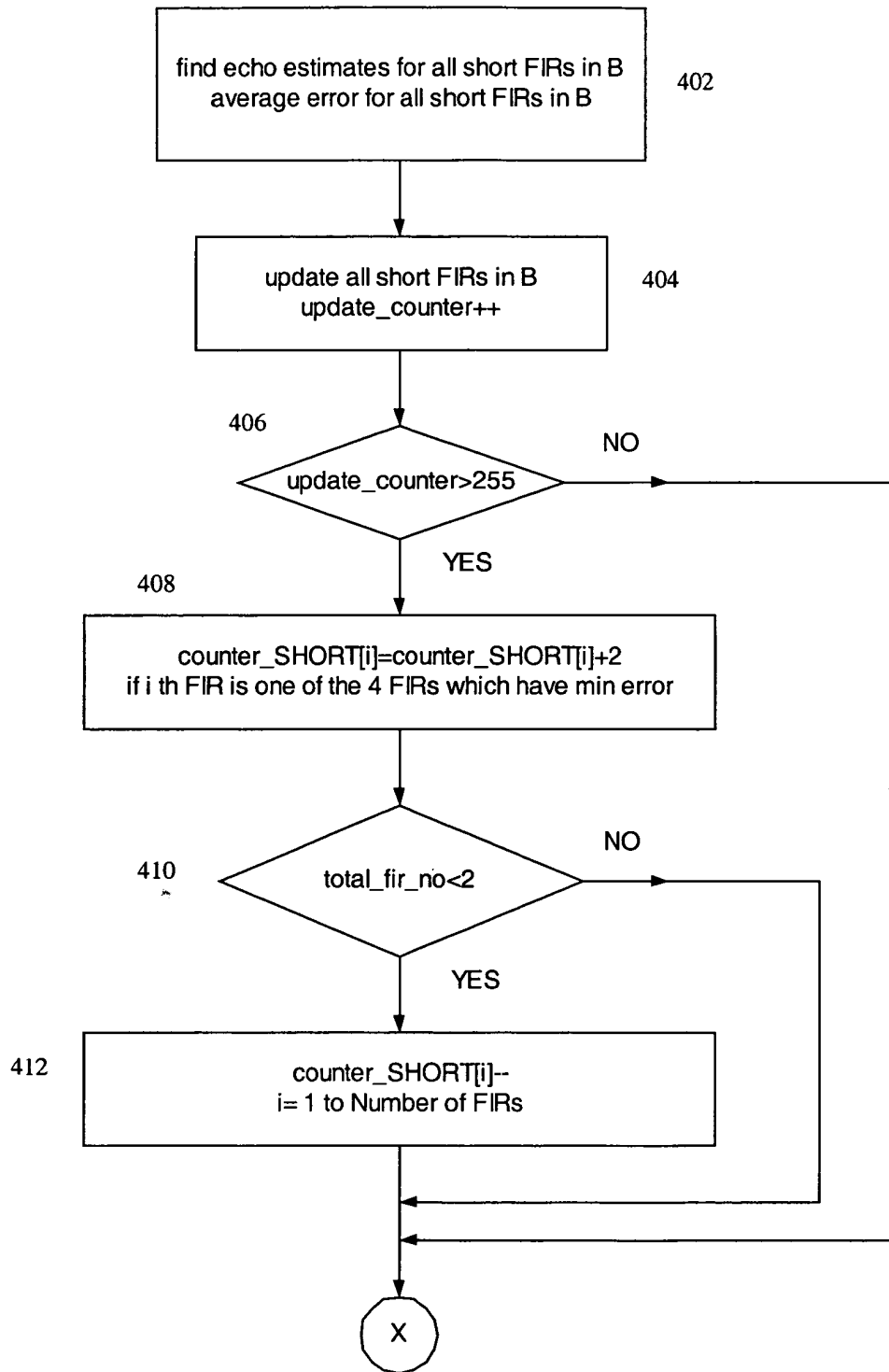


Fig. 4A

400

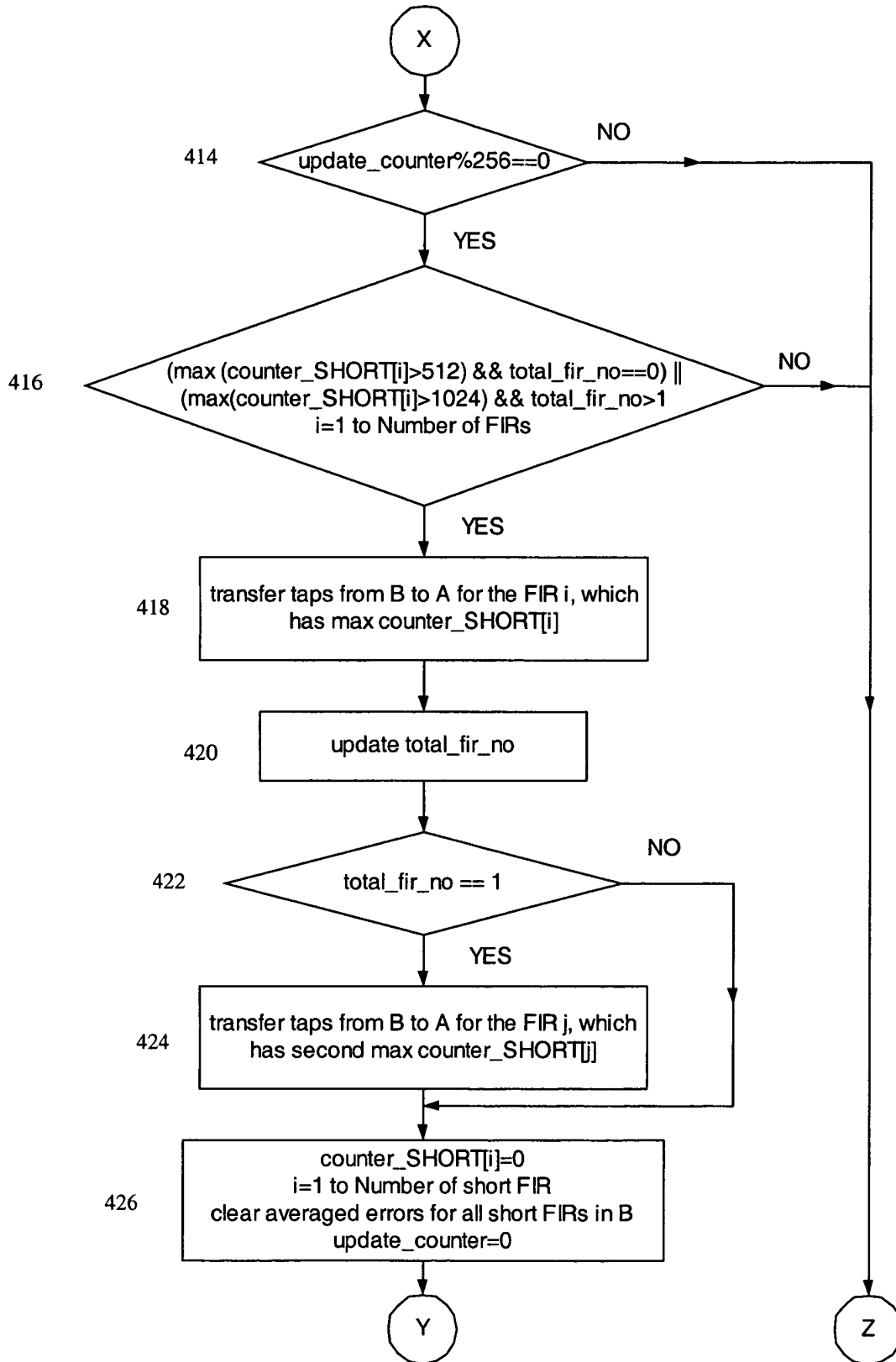


Fig. 4B

FIG. 4C

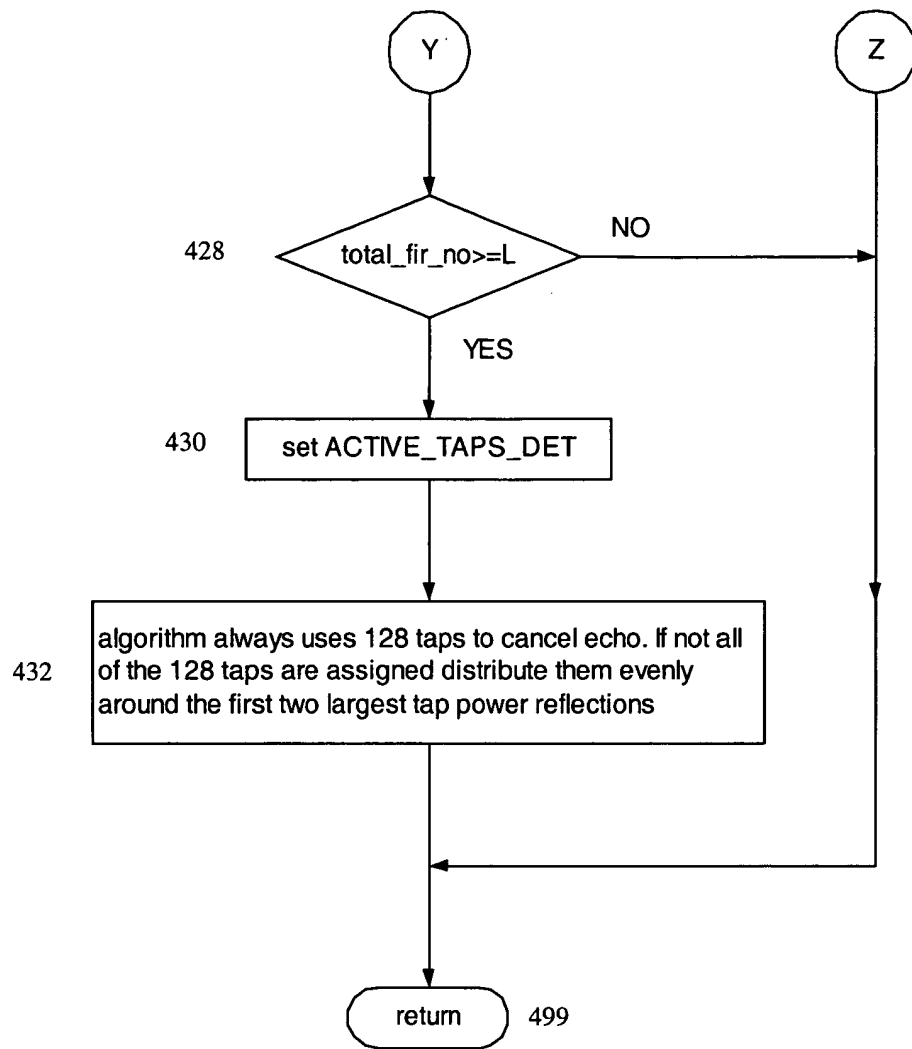


Fig. 4C

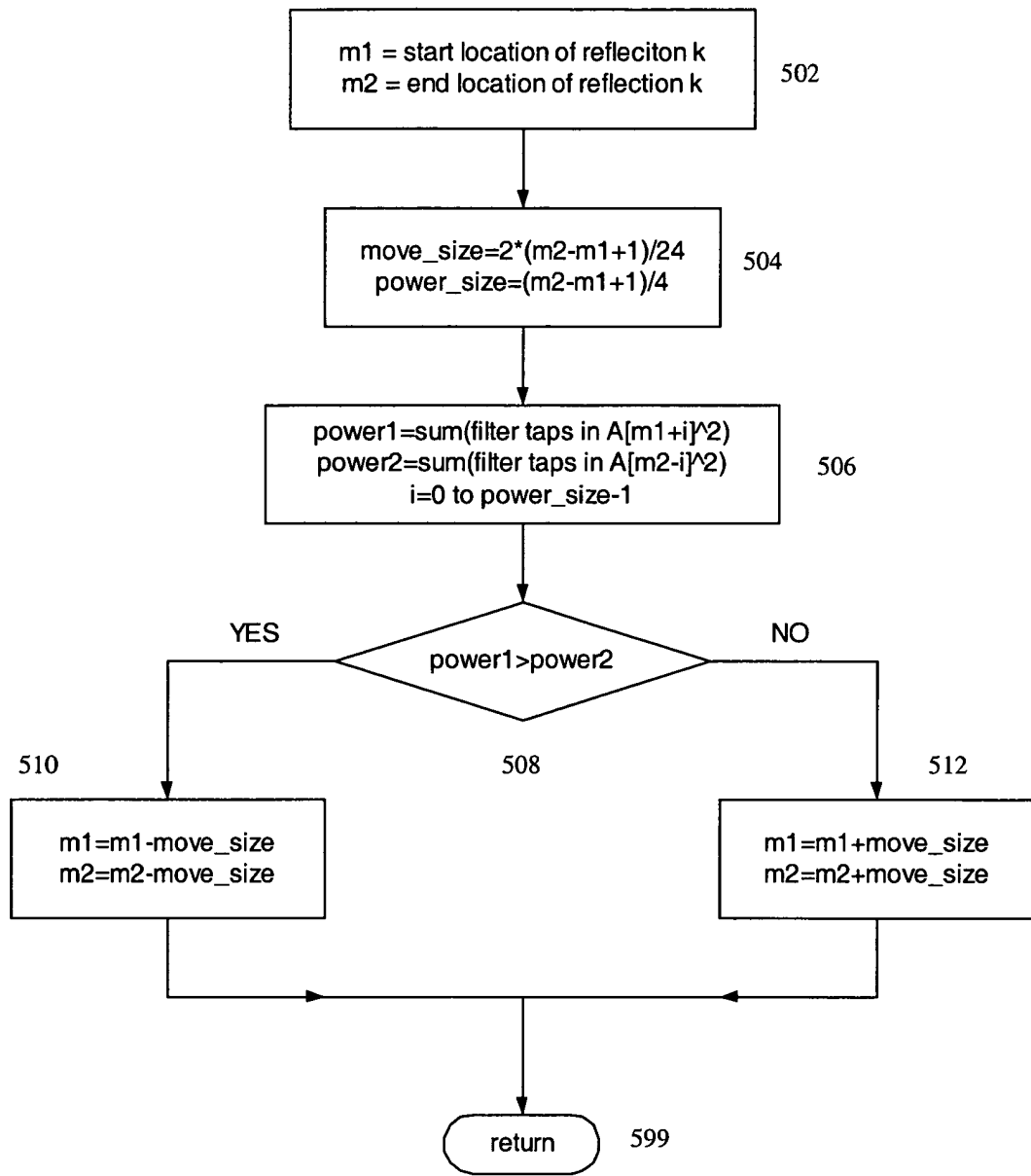


Fig. 5 500

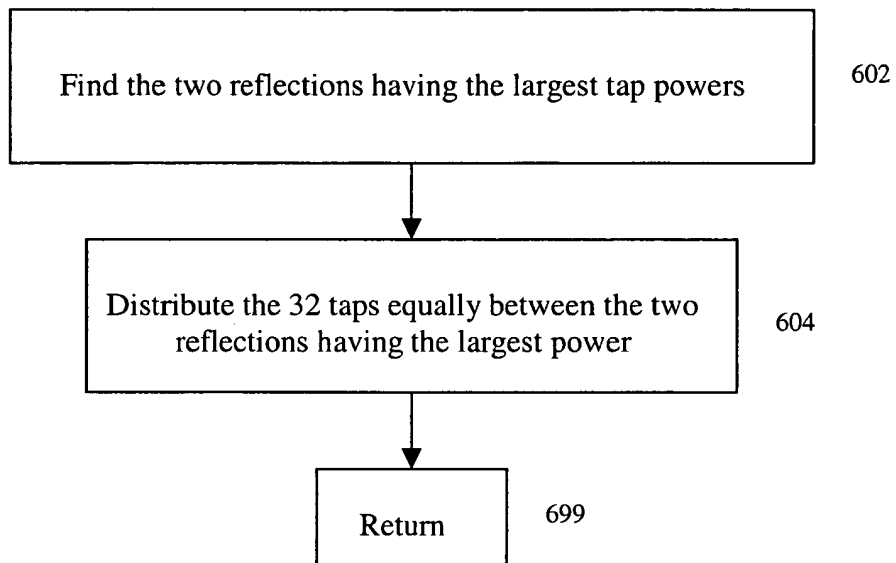


Fig. 6 600